$38.6m SiC ICs, GaN PAs, Mosfets, IBTs and PiN diodes from Cree, Raytheon and Northrup Grumann

Courtesy:http://imagine.gsfc.nasa.gov/Images/satellites/xmm.jpg

Cree Inc in Durham, NC received a $19.7m cost share/technology investment agreement contract.

The objective of Technology Investment Agreement is to establish a domestic source to develop a manufacturing capability for SiC MMIC devices, for commercial applications and next generation military radar systems.

DARPA's research strategy for technological advantage is through the next-generation semiconductor material GAN and SiC will be the substrate material of choice for the GaN circuits.

Cree was also the recipient of a previous SiC-related research contract, and is teamed with Raytheon for part of DARPA's GaN research strategy. Requests for this contract began in March 2005, negotiations were completed July 2005, and work will be complete by March 2010.

Raytheon Co, Tewksbury, MA wins a $10m cost-plus-fixed-fee contract to develop and demonstrate a Transmit/Receive integrated Multi Channel Module using 28V GaN power amplifiers, high efficiency power supplies, and advanced thermal management techniques to implement affordable advanced capability radars.

Work will be performed in Tewksbury, MA (50%) and Andover, MA (50%), and work is expected to be completed August 2008. The contract was from the Naval Research Laboratory Broad Agency.

Meantime, a Northrop Grumman Corp-led team will develop lightweight, compact, high-power electronic moduleswhere SiC technology will eventually contribute substantial weight and volume savings.

Under the $8.9m contract from the Office of Naval Research, Northrop Grumman's Electronic Systems sector will design and develop high-power electronics using wide-band gap SiC as part of DARPA Phase II Wide-Band gap High Power Switching.

Under this award, Northrop Grumman will construct SiC-based, high-frequency, power electronic modules to reduce, by up to half or more, transformer volume and weight - as large as a sports utility vehicle and up to 20,000lbs.

Wide-band gap SiC technology enables these improvements due to its ability to switch high voltages in a thin, high-speed device with excellent thermal properties.

"The US Navy will benefit from these volume and weight reductions, translating into more shipboard capacity to accommodate other mission-essential sensors, systems, weapons and other equipment," said director, advanced technology programs, Northrop Grumman's Electronic Systems sector, Steve McCoy. "Northrop Grumman has a strong history in silicon-carbide-device development and is leading the industry in inserting these devices into military platforms."

The Navy plans to incorporate this on such platforms as the new aircraft carrier (CVN-78) expecting a total weight savings of 170tons and a volume savings of 290m^3. Northrop will design, fabricate and test SiC-based MOSFETs, IBTs and PiN diodes assembled into 10kV, 110Amp half-bridge modules by Powerex, Youngwood, Pa.

Other team mates include: GeneSiC, Gaithersburg, Md; Virginia Polytechnic Institute and State University, Blacksburg, Va; Auburn University, Auburn, Ala; University of South Florida, Tampa, Fla; and Northrop Grumman's Newport News sector in Newport News, Va, which will design the solid-state power substation.

Financial constraints however will test Northrop Grumman Space and Mission Systems Corp in Redondo Beach, CA which has received a $25.2m cost-plus award-fee contract modification. The firm will use the funds to re-baseline the Space Surveillance and Tracking System (STSS, formerly SBIRS-Low) program for FY 2005 through FY 2008 due to funding reductions, and take the necessary measures to keep the project on schedule.

Fiscal year funding constraints require work content to be prioritised and time phased differently from the current performance baseline, and in order to keep the delivery schedule intact, the contractor's costs will increase (*ie*. double/triple shifts, additional personnel). Also, additional in-scope tasks are required: stand-alone space vehicle thermal vacuum test; enhanced training and rehearsal, and anomaly resolution.

While STSS has made more progress than SBIRS-High, the British American Security Council has an explanation for some of the background behind the funding issues.

The first two STSS satellites are scheduled for deployment in 2007-2008. These will provide little, if any, operational capability by themselves, but the STSS will achieve worldwide coverage once 30 satellites are deployed. Work will be complete by June 2008.

Alcatel sets up new R&D Centre

Located in Chengdu High-Tech Park, dedicated to advanced IT and telecom development, the new Centre represents Alcatel's effort to step up its research endeavours to better serve customers in China and the rest of the world.

To be inaugurated before the end of 2005, the Centre will be managed by Alcatel Shanghai Bell, Alcatel's Chinese flagship company.

The new Center will become an integrated part of Alcatel's overall R&D effort in China. In close collaboration with the existing Research & Innovation Centre at Alcatel Shanghai Bell's headquarters in Shanghai, this R&D center will bring to market promising new technologies coming out of research.

Alcatel will later integrate into this Center all activities being carried out in Alcatel's Optical Communication R&D Center in Chengdu.

The Center will also undertake the development of world-class technologies and product concepts covering fixed and mobile communication areas.

Initially, it will focus on advanced mobile technologies and solutions in the area of mobile Next Generation Networks (mobile NGN) and microwave transmission. Around 300 R&D engineers will be employed in the facility.